CLAIMS

What is claimed is:

1.   A speech recognition processor for processing an input speech utterance in a speech recognition system, comprising:

a spectral measure module receptive of the input speech utterance for computing spectral measures of the input speech utterance for predetermined time frames;

a time spectral pattern stage for concatenating a plurality of successive spectral measures for generating a spectral pattern vector;

a linear discriminant module for computing an initial raw similarity value for each sound classification unit by computing the dot product of a linear discriminant vector with the time spectral pattern vector;

a normalization module which accesses normalized values computed based upon training utterances, said normalization module finding corresponding normalized values for each said initial raw similarity value to provide a normalized similarity value and concatenating normalized similarity values to form a similarity vector, said initial raw similarity value concatenating the initial raw similarity values to form a similarity vector; and

a word matcher module for comparing said similarity vector with pre-stored reference vectors.

2.   The speech recognition processor according to claim 1, wherein said linear discriminant vector is computed based upon training utterances using Fisher's linear discriminant analysis.

3.   The speech recognition processor according to claim 1, wherein said normalized values are computed by taking in-class and out-class training utterances as time spectral patterns and computing the dot product of the time spectral patterns for the training utterances with said linear discriminant vector for generating histograms of the number of occurrences of a specific score for said in-class and out-class training utterances and subtracting normalized scores for the out-class training utterances from normalized scores for the in-class utterances to generate a normalization function.

4.   The speech recognition processor according to claim 3, wherein said normalization function includes normalization values between $+\Sigma$ and $-\Sigma$.

5.   A method for processing an input speech utterances for speech recognition, comprising:

representing the input speech utterance as a spectral measure for predetermined time frames;

generating a time-spectral pattern vector by concatenating together a plurality of spectral measures;

computing the dot product of said time-spectral pattern vector with a linear discriminant vector to produce an initial similarity value;

normalizing said preliminary similarity value by applying the normalization function generated based upon training utterances to the initial similarity value to create a normalized similarity value and concatenating normalized similarity values from multiple discriminate vectors associated with multiple sound classes to form a normalized similarity vector; and

performing a word match with a list of word candidates based upon said normalized similarity vector.